

REMARKS/ARGUMENTS

The Office Action mailed July 26, 2005, has been reviewed and considered. Claims 23, 26, 27, 30, 33-40, 43-46, and 75 are currently pending in the application. Claims 23, 26, 27, 30, 33-40, 43-46, and 75 stand rejected. Claims 33-40 and 43-46 are amended herein. To further advance prosecution of claims 33 and 75 (and their dependencies), Applicant has canceled claims 23, 26, 27, and 30. Applicant expressly reserves the right to pursue the canceled claims and any other claims in a continuing application. Applicant respectfully requests reconsideration of the application as amended herein and in light of the arguments presented below.

Background

In the present case, Applicant's original claims were rejected in an office action dated November 4, 2004. In that office action, the examiner stated that claim 42, which recited a composition with 60 to 65% alcohol component, was allowable if rewritten in independent form. (*see* November 4, 2004 office action, point 8). The examiner also stated that "[t]he prior art fails to teach or *suggest* ... a fuel composition comprising the claimed components and 60% alcohol" of the claims, including claim 42. (*Id.*) Applicant's representatives participated in a telephonic interview on May 4, 2005, with Examiner Toomer and agreement was reached that amending claim 33 to include the limitations of claim 42 would overcome the prior art of record (*see* Interview Summary of May 4, 2005). Applicant amended claims 23, 26-27, 30, 33-36, 44, and 75 in a response submitted May 4, 2005. Specifically, claims 33-40 and 43-44 were amended to recite an alcohol component in a range of from 60 to 65% by weight (claims 45 and 46 already fell within the range recited in claim 42). Claims 23, 26-27, and 30 were amended to be independent claims.

In response to Applicant's amended claims and arguments, the examiner has now issued a new office action, dated July 26, 2005, rejecting all claims, including claim 33. Applicant respectfully traverses the rejection for the reasons set forth below.

35 U.S.C. § 112 Claim Rejections

Claim 35 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, claim 35 was rejected because the examiner asserts that glycerol does not satisfy the formula ROH. Applicant respectfully traverses the rejection. The examiner's reference to "ROH" is an element found in claim 34, but claim 35 does not depend from claim 34. Instead, claim 35 depends from claim 33. Claim 33 makes no mention of the element "ROH." Therefore, glycerol does not have to satisfy the formula ROH, and the rejection is improper. Applicant respectfully requests that this rejection be withdrawn.

35 U.S.C. § 103(a) Obviousness Rejections

Claims 33-40, 43-46, and 75 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over CA 2,342,824 (Yoshiharu et al). Applicant respectfully traverses the rejection on grounds that Yoshiharu et al. does not support a *prima facie* case of obviousness.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

An examiner bears the initial burden to factually support a *prima facie* case of obviousness. With no factual support, a *prima facie* case is absent and the applicant is under no obligation to submit evidence of nonobviousness (*see In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984); M.P.E.P. § 2142). A prior art reference must be considered in its entirety, *i.e.*, as a whole, including portions that would lead away from the claimed invention (*see W.L. Gore and Associates, Inc. v. Garlock, Inc.* 721 F.2d 1540 (Fed. Cir. 1983) *cert. denied*, 469 U.S. 851 (1984); M.P.E.P. § 2141.02).

The examiner's rejection states that Yoshiharu et al. teaches a liquid fuel composition comprising 10-50% of at least two kinds of C₂-C₁₁ alcohols, 40-60% naphtha, and 10-30% of at least one kind of ether (see July 26, 2005 office action, point 4). The examiner then presented five aspects in which Yoshiharu et al. differs from the rejected claims.

The present obviousness rejection is improper for the following reasons. First, Yoshiharu et al. does not provide an expectation that the claimed compositions would possess the same properties as the compositions disclosed in the reference. Second, Yoshiharu et al. does not teach a range of either the alcohol or naphtha components that overlap with Applicant's claimed ranges. Each of these grounds of traverse is discussed below.

A. One skilled in the art would not expect the claimed composition to have the same properties as the compositions taught in Yoshiharu et al.

A *prima facie* case of obviousness may exist where the claimed ranges and prior art ranges do not overlap but are so close that one skilled in the art would expect them to have the same properties (see *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985); M.P.E.P. §2144.05(I)). Use of *per se* rules, however, by Office personnel is improper for determining whether claimed subject matter would have been obvious under 35 U.S.C. § 103 (see M.P.E.P. § 2144.08(II) citing *In re Brouwer*, 77 F.3d 422, 424 (Fed. Cir. 1996); *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995); *In re Baird*, 16 F.3d 380, 382 (Fed. Cir. 1994); *In re Devel*, 51 F.3d 1552, 1559 (Fed. Cir. 1995)). Instead, a determination of patentability under 35 U.S.C. § 103 should be made upon the facts of the particular case in view of the totality of the circumstances (see *In re Dillon*, 919 F.2d 688, 692-93 (Fed. Cir. 1990) (en banc)).

Despite these principles stated in the M.P.E.P. and in the case law, the examiner takes the position that a *prima facie* case of obviousness exists because Yoshiharu et al. appear to teach a composition with 10-50% alcohol and 30-60% naphtha (see July 26, 2005 office action, page 4, second paragraph). Presumably, the examiner has taken the position that a teaching of 50% alcohol content renders obvious a claim encompassing 60% alcohol content.

The examiner's conclusion stretches the facts of the present application far beyond the measure of the *Titanium Metals Corp.* decision. In that case, the prior art taught a first titanium

alloy with 0.75% nickel, 0.25% molybdenum and a second titanium alloy with 0.94% nickel and 0.31% molybdenum. The applicant in that case claimed a metal alloy reciting 0.8% nickel, 0.3% molybdenum, 0.1% or less iron, and the remaining composition being titanium. The court held that the claim was obvious because the proportions of metals were so close (a difference of only 0.05%) that one skilled in the art would expect the compositions to have the same properties (*see Id.* at 783).

Table I. *Titanium Metals Corp.* decision

Claimed Invention	Prior Art Example 1	Prior Art Example 2	Minimum Difference
0.3% Mo	0.25% Mo	0.31% Mo	0.05%
0.8% Ni	0.75% Ni	0.94% Ni	0.05%

The difference between the recited element and teaching of the prior art in the *Titanium Metals Corp.* decision was 0.05% molybdenum and 0.05% nickel (*see* Table I).

Unlike the factual situation in *Titanium Metals Corp.*, the difference between the presently cited reference and the Applicant's claims 33 and 75 is 10-15% alcohol and as much as 10% naphtha. In the chemical arts, such differences are significant. In fact, there is at least a 200 fold relative difference between the present case and the *Titanium Metals Corp.* comparison (0.05% compared to 10%).

Not only is there a substantial numerical difference, but the prior art also suggests to one skilled in the art that combustible fuels falling within the claimed range would not be either desirable or would not have identical properties as fuels with 50% or less alcohol component. It is known in the art that with increasing alcohol proportion, a number of problems arise. U.S. Patent No. 4,695,292 entitled "Motor Fuel Compositions and Methods" to Hans Osborg describes several of these problems:

The increased octane number obtained by blending gasoline with a lower alcohol is offset by several serious drawbacks. **First**, the addition of a lower alcohol to gasoline generally increases its vapor pressure and *adversely* affects its distillation characteristics, which may result in hard starting and vapor lock in hot weather, as well as making engine warm-up difficult in cold weather. **Second**, in comparison to gasoline, the lower alcohols, as a group, have a relatively low heat content or energy value, so that mixing alcohol with gasoline *may reduce* fuel economy, i.e. lower mileage per gallon. **Third**, the stability of gasoline-alcohol blends is significantly influenced by variations in composition and temperature. For example, blends having a methanol content of about 10 volume percent or more

are susceptible to phase separation, particularly at temperatures below 0.degree. C. The *stability problem* is exacerbated by the presence of water in the blend. Even as little as a fraction of one-percent of water in certain gasoline-alcohol blends may cause "splitting" of the blend, i.e. separation into an aqueous alcohol phase and a gasoline-hydrocarbon phase. Such separation may cause *starting problems, rough engine operation, and fuel-line plugging*. Accordingly, anhydrous alcohol must be used for blending with gasoline and extreme care must be exercised so that the alcohol remains substantially anhydrous during transportation and storage. **Fourth**, the lower alcohols readily pick up water, and become oxidized in the presence of water, forming aldehydes and acids which tend to corrode metals and cause degradation of plastics, and thus may severely damage engine parts, fuel tanks and fittings, particularly those made of aluminum.

(emphasis added, col. 1, line 46 – col. 2, line 9, attached as Exhibit 1).

Thus, as least four different problems are taught by the art for increasing alcohol proportions in fuel blends. First, the more alcohol is present, the more vapor pressure the fuel composition exhibits. This in turn leads to vapor locking, hard starting, and engine warm-up difficulties. Second, alcohols have lower heat content than straight gasoline. As such, the greater the proportion of alcohol, the less heat content expected from the fuel composition which in turn can reduce fuel economy, horse power, and other engine performance criteria. Third, gasoline blends with increasing alcohol are more prone to stability problems such as phase separation and hydrophilicity both of which lead to engine starting problems, rough engine operation, and fuel-line plugging (*see also* Application, paragraph 14). Fourth, alcohol reaction stability can be a problem in that alcohols can be oxidized to aldehydes, ketones, and organic acids. These alcohol-reaction products in turn lead to further fuel system and engine corrosion (*see also* Application, paragraph 18; CA 2,342,824 at page 2, 2nd and 3rd paragraphs). These and other disadvantages clearly *teach away* from fuel blends using the claimed range of alcohols.

Finally, the office action does not identify or explain why one skilled in the art would expect the claimed compositions to have the same properties as the fuels disclosed in Yoshiharu et al. Applicant respectfully submits that the examiner has not met her burden of establishing a *prima facie* case of obviousness. Applicant respectfully requests that the examiner clarify the basis for expecting that the claimed compositions possess the same properties as the cited art and whether the examiner is relying solely on Yoshiharu et al. or on other facts within the realm of the prior art not found in any published reference. To the extent that the examiner is relying on "facts within his or her knowledge" pursuant to 37 C.F.R. § 01.104(6)(3) and (d)(2), Applicant

respectfully requests an affidavit describing such facts and explaining the basis of the examiner's reliance on those facts. Applicant further requests that any future rejection be made non-final to permit a fair and proper opportunity to respond to the basis of rejection, which has not yet been articulated.

In the absence of a statement explaining why one skilled in the art would expect that the properties of the claimed compositions would be the same as the properties in Yoshiharu et al., the expectation can only be explained by impermissible hindsight. A reference or combination of references cannot be viewed with the benefit of the Applicant's disclosure (*see* M.P.E.P. §2141). Besides, the expectations of one skilled in the art (taught in U.S. 4,695,292) are contrary to the examiner's conclusionary position. Therefore, the rejection in view of Yoshiharu et al. is improper and the rejection should be withdrawn.

B. Yoshiharu et al. do not teach a range of alcohol or naphtha component overlapping with the claimed invention.

Where claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness can exist (*see In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); M.P.E.P. §2144.05(I)).

Yoshiharu et al. do not teach a range of either alcohol or naphtha components that overlap with the Applicant's claimed ranges. This point is conceded by the examiner at paragraph 2, page 4 of the present office action. Specifically, the examiner states, "[Yoshiharu et al.] differs from the claims in that it does not teach the range of 60-65% wt. % alcohol (claim 33 and its dependents and 75)." Furthermore, this point was recognized by the examiner in the first office action when the examiner stated that limitation in then pending claim 42 was not taught or suggested by the same prior art reference (*see* November 4, 2004 office action, point 8). Applicant agrees that Yoshiharu et al. does not teach an alcohol component in the recited range. Thus, it is clear that the rejection would not be proper on the basis that the range recited for the claimed invention overlaps with the prior art. Accordingly, Applicant's pending claims are not obvious in view of Yoshiharu et al., since the reference does not teach or suggest an *overlapping* range of an alcohol component.

35 U.S.C. § 102(b) and 103(a) Rejections in view of Binions

Claims 33-36, 38-40, 43, 44, and 75 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Binions (U.S. Patent Application Publication No. 20040107634). The reference has a filing date of December 5, 2005. Applicant submits herewith a declaration of prior invention under 37 C.F.R. § 1.131, attached as Exhibit 2. The declaration establishes an invention date prior to the December 5, 2005, filing date of Binions. Accordingly, Binions is not prior art under 35 U.S.C. § 102(e). Applicant requests that the rejections under § 102 and § 103 in view of Binions be withdrawn.

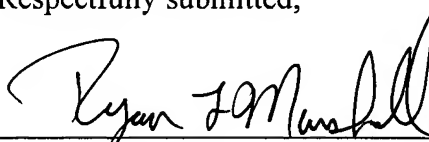
ENTRY OF AMENDMENTS

The amendment to claim 30 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application.

CONCLUSION

Claims 33-40, 43-46, and 75 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, she is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Ryan L. Marshall", is written over a horizontal line.

Ryan L. Marshall
Reg. No. 47,770
Holland & Hart LLP
60 East South Temple, Suite 2000
P.O. Box 11583
Salt Lake City, UT 84147-0583
Telephone: (801) 517-7865
Fax: (801) 364-9124

Date: January 26, 2006
RLM/jml